UNITED STATES PATENT AND TRADEMARK OFFICE

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10/589,783	08/17/2006	Morito Morishima	YAMA:138	9499

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EXAMINER
PAUL, DISLER

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 April 2009*.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3;5-8; 10-14* is/are pending in the application.
     4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☒ Claim(s) *1;3;11-12;14* is/are allowed.
6)☒ Claim(s) *2,5-8,10 and 13* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
     a)☒ All   b)☐ Some *   c)☐ None of:
         1.☐ Certified copies of the priority documents have been received.
         2.☐ Certified copies of the priority documents have been received in Application No. _____.
         3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
     Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
     Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 5 recites the limitation "calculate position based on the Known distance between the two speakers" in therein. There is insufficient antecedent basis for this limitation in the claim.

Allowable Subject Matter

Claims 1; 3; 11-12; 14 are allowed.

Re claim 1, while, the prior art of record disclose of a sound reproducing apparatus for driving a plurality of speakers with two of the speakers having a distance therebetween to reproduce multi-channel sound, the sound reproducing apparatus comprising: a generator configured to generate a measuring signal and supply the measuring signal to each of the plurality of speakers (fig.12 (35); par [0058; 0060-0061]); at least two sensors positionable to a listening position, each of the at least two sensors transmitting a reception notification when receiving a measuring sound wave radiated from each of the speakers in accordance with the measuring signal (fig.8-9; fig.12 (43-44); par [0049; 0058]/multiple sensor and communicate of the reception) ; a time difference measuring unit configured to measure a time difference between a time instant when the measuring signal is generated and a time instant when the reception notification is received from each of the at least two sensors (fig.12 (45); par [0058]); a distance

calculator configured to calculate a distance between each of the at least two sensors and each of the two speakers based on the measured time difference (fig.10 (R); par [0058]/determine the distance based on the time difference) and a position calculator configured to calculate the a position of each of the two speakers based on the calculated distance.

However, none of the art as in combination disclose of such specific wherein a distance calculator configured to calculate a distance between the at least two sensors and a distance between each of the at least two sensors and each of the two speakers based on the measured time difference and the known distance between the two speakers; and a position calculator configured to calculate a position of each of the two speakers based on the calculated distance between the at least two sensors and the calculated distance between each of the two speakers from each of the at least two sensors.

Similarly Re claim 11, which cite the same limitation as in claim 1 has been analyzed and allowed accordingly.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains.
Patentability shall not be negatived by the manner in which the invention was made.

Claims 2; 5-8; 10; 13 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Cohen et al. (US 2003/0031333 A1).

Re claim 2, Cohen et al. disclose of a sound reproducing apparatus for driving a

plurality of speakers to reproduce multi-channel sound, the sound reproducing

apparatus comprising: a generator configured to generate a measuring signal and

supply the measuring signal to a to-be-speaker of the plurality of speakers (fig.12 (35,

27); par [0058; 0060-0061]/signal to the sensor) and at least two sensors disposed in a

listening position, each of the at least two sensors transmitting a reception notification

when receiving a measuring sound wave radiated from the to-be-detected speaker in

accordance with the measuring signal(fig.8-9; fig.12 (43-44); par [0049; 0058]/multiple

sensor and communicate of the reception); a time difference measuring unit configured

to measure, as to each of the at least two sensors, a time difference between a time

instant when the measuring signal is generated and a time instant when the reception

notification is received from each of the at least two sensors (fig.12 (45); par [0058]);

and a distance calculator configured to calculate, as to each of the at least two sensors,

a distance between each of the at least two sensors and the to-be-detected speaker

based on the measured time difference (fig.9-10; fig.12 (45); par [0058]/calculate the

distance between the sensor and the speaker) a position calculator configured to

calculate a position of the to-be-detected speaker based on a distance between the at

least two sensors and the calculated distance (fig.9-10; fig.12 (45); par [0052;

0055]/based on such distance of the sensor as inherently factor in based on the housing

and the calculated distance thus, speaker position is determined); a storage that stores

the calculated position of the to-be-detected speaker (fig.12 (47, 39);par [0064]) and

having a speaker layout corrector configured to change over signal lines from an

amplifier to the speakers and correct an incorrect layout of the speakers when

respective speaker positions stored in the storage are out of a relative position

relationship of the speakers (fig.12 (47,39); par [0062-0063]/interface with stored

position to correct the virtual positions relationship of the speakers based on the stored

positions in the memory).

However, cohens fail to disclose of such correction when speaker position being

out of predetermined relative position relationship of the speakers. But, it is noted it

would have been obvious for one of the ordinary skill in the art to have modified the

position element with further incorporating the speaker position as being out of

predetermined relative position relationship of the speakers with producing no

unexpected result so as to similarly change the speakers lay out as desired.

Re claim 5, Cohen et al. disclose of a sound reproducing apparatus for driving a

plurality of speakers to reproduce multi-channel sound, the sound reproducing

apparatus comprising: a generator configured to generate a measuring signal and

supply the measuring signal in turn to two of the plurality of speakers having known

positions with respect to a listening position (fig.12 (35, 27); fig.1-2; par [0058; 0060-

0061]/signal to the sensor); a sensor attached to a device and transmits a reception

notification as to each of the two speakers when receiving a measuring sound wave

radiated from each of the two speakers in accordance with the measuring signal (fig.8-

9; fig.12 (43-44); par [0049; 0058]/multiple sensor and communicate of the reception).

However, Cohen et al. never specify of such sensor attached to a to-be -detected

speaker. However, it would have been obvious for one of the ordinary skill in the art to

have substituted the device with a to-be -detected speaker with having no unexpected

result so as to similarly determining the position of the loudspeakers.

Cohen et al. as modified further disclose of a time difference measuring unit

configured to measure, as to each of the two speakers, a time difference between a

time instant when the measuring signal is generated and a time instant when the

reception notification is received from the sensor (fig.12 (45); par [0058]); a distance

calculator configured to calculate a distance between each of the two speakers and the

to-be-detected speaker based on the measured time difference (fig.10; par [0051]) and

a position calculator configured to calculate a position of the to-be-detected speaker

based on a known distance between the two measuring speakers the calculated

distance and (fig.1-2; fig.10; par [0039; 0064]/determine the sensor position with to be

detected speaker based on the distance and a certain distance between the speakers

as measured with angle distance) and a storage that stores positions of the two

speakers and the calculated speaker position (fig.12 (47, 39);par [0064]).

Re claim 6, the sound reproducing apparatus according to claim 5, further comprising a speaker layout corrector configured to change over signal lines from an amplifier to the speakers and correct an incorrect layout of the speakers when respective speaker positions stored in the storage are out of a relative position relationship of the speakers (fig.12 (47,39); par [0062-0063]/interface with stored position to correct the virtual positions relationship of the speakers based on the stored positions in the memory).

However, Cohen et al. failed to disclose of such correction when speaker position being out of predetermined relative position relationship of the speakers. But, it is noted it would have been obvious for one of the ordinary skill in the art to have modified the position element with further incorporating the speaker position as being out of predetermined relative position relationship of the speakers with producing no unexpected result so as to similarly change the speakers lay out as desired.

Re claim 7, the sound reproducing apparatus according to Claim 5, further comprising a sound field controller configured to produce sound image localization as if the speakers were located in predetermined recommended positions, respectively, based on respective speaker positions stored in the storage (fig.12 (47, 39); par [0062-

0063]/interface with stored position to correct the virtual positions relationship of the

speakers based on the stored positions in the memory).

RE claim 8, Cohen et al. disclose of a method of identifying positions of a

plurality of speakers using at least two sensors disposed in a listening position, the

method comprising the steps of: generating a measuring signal and supplying the

measuring signal to one of the plurality of speakers (fig.12 (35, 27); par [0058; 0060-

0061]/signal to the sensor); transmitting a reception notification when each of the at

least two sensors receives a measuring sound wave radiated from the one speaker in

accordance with the measuring signal(fig.8-9; fig.12 (43-44); par [0049; 0058]/multiple

sensor and communicate of the reception); measuring a time difference between a time

instant when the measuring signal is generated and a time instant when the reception

notification is received from each of the at least two sensors (fig.12 (45); par [0058]);;

calculating a distance between each of the at least two sensors and the one speaker

based on the measured time difference (fig.9-10; fig.12 (45); par [0058]/calculate the

distance between the sensor and the speaker); calculating a position of the one speaker

based on a distance between the at least two sensors and the calculated distance fig.1-

2; fig.10; par [0039; 0064]) and storing the calculated position of the speaker into a

storage (fig.12 (47, 39);par [0064]) and changing over signal lines from an amplifier to

the speakers and correcting an incorrect layout of the speakers when stored positions of

the speakers are out of a relative position relationship of the speakers (fig.12 (47,39);

par [0062-0063]/interface with stored position to correct the virtual positions relationship of the speakers based on the stored positions in the memory).

However, cohens fail to disclose of such correction when speaker position being out of <u>predetermined</u> relative position relationship of the speakers. But, it is noted it would have been obvious for one of the ordinary skill in the art to have modified the position element with further incorporating the speaker position as being out of <u>predetermined</u> relative position relationship of the speakers with producing no unexpected result so as to similarly change the speakers lay out as desired.

RE claim 10, the method according to Claim 8, further comprising the step of producing sound image localization as if the speakers were located in predetermined recommended positions respectively, based on stored positions of the speakers (fig.12 (47, 39); par [0062-0063]/interface with stored position to correct the virtual positions relationship of the speakers based on the stored positions in the memory).

RE claim 13, the method according to Claim 8, wherein each of the at least two sensors is positionable with the other (fig.9);

However, cohen et al. fail to disclose of the sensors is positionable independent of the other. But, official notice is taken having sensors is positionable independent of the other is well known in the art. Thus, it would have been obvious for one of the

ordinary skills in the art to have modified the combination with incorporating the sensors

is positionable independent of the other so as to vary the positions of each sensor as

desired.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to DISLER PAUL whose telephone number is (571)270-

1187. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Vivian CHin can be reached on 571-272-7848. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. P./
Examiner, Art Unit

/Xu Mei/
Primary Examiner, Art Unit 2614